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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/935,577	08/24/2001	Shigeo Mikoshiba	Q65912	8851

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EXAMINER

GUHARAY, KARABI

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 02/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/935,577

Applicant(s)

MIKOSHIBA ET AL.

Examiner

Karabi Guharay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE, filed on 12/20/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/1/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/20/2005 has been entered.

Amendment of claim, filed on 12/20/05 has been entered. Claim 8 has been added.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 & 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshinori (JP 08-162069).

Regarding claim 1, Yoshinori discloses a vacuum ultraviolet radiation excited light emitting device (fluorescent lamp, Fig 1 & 4) comprising a discharge space (1a, 90a) filled with rare gas between a front faceplate (1, 91) and a rear faceplate (2, 92) wherein the front faceplate (1, 91) is that which faces the observer (since faceplate 1 is the luminescent side) and a fluorescent material (5, 95) provided on the front faceplate

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(1, 91, see paragraph 2-4 & paragraph 8 of English Translation), the fluorescent material layer having thickness of not more than 7 micron (see English Abstract).

Regarding claim 2, Yoshinori further discloses a fluorescent material layer (8) on the rear faceplate (see Fig 1).

Regarding claim 3, Yoshinori discloses that the vacuum ultraviolet excited light-emitting device is a rare gas lamp (lamp having discharge containing rare gas).

Regarding claim 5, Yoshinori discloses that the vacuum ultraviolet excited light-emitting device is a plasma display device (since plasma is generated through breakdown of rare gas).

Regarding claim 6, Yoshinori discloses that the thickness of the fluorescent material layer (8) on the rear faceplate has a thickness of not more than 20 micron (see English Abstract).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshinori (JP 08-162069).

Regarding claim 8, Yoshinori discloses fluorescent powder, which produces red, green and blue light (see paragraph 18 of English Translation), but does not specifically disclose the type of phosphor.

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However, $\text{Y}_2\text{O}_3:\text{Eu}$, $\text{Y}_2\text{O}_2\text{S}:\text{Eu}$, $(\text{Y}, \text{Gd})\text{BO}_3:\text{Eu}$, $\text{BaAl}_{12}\text{O}_{19}:\text{Mn}$, $\text{BaMgAl}_{10}\text{O}_{17}:\text{Mn}$, $\text{BaMgAl}_{14}\text{O}_{23}:\text{Mn}$, $\text{Zn}_2\text{SiO}_4:\text{Mn}$, $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}$ or $\text{BaMgAl}_{14}\text{O}_{23}:\text{Eu}$ are well known fluorescent materials for red green and blue emission.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use these well known fluorescent material in the device of Yoshinori as red green and blue phosphor powder, since selection of known materials for known purposes is within the skill of art.

Claims 1-3, 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohsawa et al. (US 5,939,826) in view of Murata et al. (US 6,611,099).

Regarding claim 1, Ohsawa discloses a vacuum ultraviolet radiation excited light-emitting device comprising a discharge space S filled with a rare gas between a front faceplate 3 and a rear faceplate 1, and a fluorescent material 7 layer provided on the front faceplate. Ohsawa teaches the thickness of the fluorescent material on the front faceplate to be optimized to produce a thin layer, which avoids attenuation of light (see Col. 6, lines 7-10 and 20-25), but is silent regarding the limitation of "the thickness being less than 7 μm ".

However, in the same field of endeavor, Murata discloses a PDP comprising a fluorescent material having a thickness of less than 7 μm and teaches said thickness to be suitable for reducing the voltage applied to the fluorescent material, which minimizes the discharge start voltage of each discharge space, facilitating driving control for displaying an image (see Col. 15, lines 44-55, and Col. 7, lines 65-66).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the fluorescent material with a thickness of 7 μm with the purpose of reducing the voltage applied to the fluorescent material, which minimizes the discharge start voltage of each discharge space, facilitating driving control for displaying an image.

Referring to claim 2, Ohsawa discloses the light-emitting device further comprising a fluorescent material on the rear faceplate (see Fig 9).

Referring to claim 5, Ohsawa discloses the light-emitting device being a PDP.

Referring to claim 6, Ohsawa-Murata discloses the fluorescent material on the rear faceplate having a thickness of not more than about 20 μm . Same reasons for the thickness value stated in claim 1 apply.

Referring to claim 7, Ohsawa-Murata discloses the fluorescent material layer containing a fluorescent material having an average primary particle diameter of not more than about 1 μm (see '099, Col. 3, lines 31-35).

Claims 1-4 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anandan et al.(US 5,708,324) in view of Murata et al. (US 6,611,099).

Regarding claim 1, Anandan discloses a vacuum ultraviolet radiation excited light-emitting device comprising a discharge space 4 (see Fig 1B) filled with a rare gas between a front faceplate 1 and a rear faceplate 2, and a fluorescent material 6 layer provided on the front faceplate (1) which faces an observer.

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Anandan teaches the thickness of the fluorescent material on the front faceplate to be optimized to produce a thin layer, which avoids attenuation of light (see Col. 2, lines 30-38), but is silent regarding the limitation of "the thickness being less than 7 μm ".

However, in the same field of endeavor, Murata discloses a PDP comprising a fluorescent material having a thickness of less than 7 μm and teaches said thickness to be suitable for reducing the voltage applied to the fluorescent material, which minimizes the discharge start voltage of each discharge space, facilitating driving control for displaying an image (see Col. 15, lines 44-55, and Col. 7, lines 65-66).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the fluorescent material with a thickness of 7 μm with the purpose of reducing the voltage applied to the fluorescent material, which minimizes the discharge start voltage of each discharge space, facilitating driving control for displaying an image.

Regarding claim 2, Anandan discloses the light-emitting device further comprising a fluorescent material on the rear faceplate (see Fig 1B).

Regarding claim 3, Anandan discloses the light-emitting device being a rare gas lamp.

Regarding claim 4, Anandan-Murata discloses the fluorescent material layer on the rear faceplate having a thickness of not less than about 30 μm .

The Examiner notes that Anandan teaches the thickness of the fluorescent material on the rear faceplate to be in a range from 2 to 10 times the thickness of the fluorescent material on the front faceplate (see Col. 2, lines 53-57).

Referring to claim 7, Murata discloses the fluorescent material layer containing a fluorescent material having an average primary particle diameter of not more than about 1 μm (see '099, Col. 3, lines 31-35). The same reason for combining art as in claim 1 applies.

Response to Arguments

Applicant's arguments filed 12/20/05 have been fully considered but they are not persuasive.

Applicant further argues that Ohsawa et al do not teach a fluorescent material formed on the front faceplate based on the statement that "current face panel cannot be coated enough to use the UV ray effectively in connection with the light output needed to display" although Ohsawa teaches that "there is no problem if the light output face can be coated fully with the phosphor" and clearly demonstrate that in Fig 2 & 9.

In response examiner respectfully presents that by saying

"the current face panel cannot be coated enough to use the ultraviolet ray effectively in connection with the light output needed to display" first, Ohsawa is supporting his position on the need for controlling the thickness of a phosphor by providing a thin fluorescent layer which avoids attenuation of light (see Col. 6, lines 7-10 and 20-25).

This above statement of Ohsawa, by no means indicates not to have a phosphor layer on the faceplate. However, even if Applicant's allegation of Ohsawa teaching not to fully coat the faceplate was accurate, the claim language only requires a phosphor layer disposed on the faceplate and recites no limitations about said layer being continuous or covering all the area of the faceplate.

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Further Ohsawa, in Fig 9, teaches a way of fully coating phosphor layer on the front face plate with a filter layer 9, which will solve the problem of effectively use the UV rays in connection of light output needed to display. Filter layer 9 will effectively reflect UV rays (while transmitting visible rays) back to impinge on phosphor layer (see lines 27-51 of column 9).

Ohsawa, thus teaches a layer of phosphor on the front face plate.

Regarding rejections of claims with prior art of Anandan in view of Murata, applicant contends that Murata does not teach a fluorescent material provided on the front faceplate.

In response to applicant's arguments, examiner presents that Anandan teaches the thickness of the fluorescent material on the front faceplate to be optimized to produce a thin layer which avoids attenuation of light, but is silent regarding the specific thickness. However, Murata teaches a thickness of 7 micron to be suitable for reducing the voltage applied to the fluorescent material, which minimizes the discharge start voltage of each discharge space, facilitating driving control for displaying an image. Accordingly, one of ordinary skill in the art would entertain the idea of providing a thickness of about 7 micron to the light-emitting device of Anandan, and would have had a reasonable expectation of achieving the claimed invention.

Applicant's piecemeal analysis of references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 208 USPQ 871 (CCPA 1981).

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karabi Guharay

Karabi Guharay
Primary Examiner
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